

***FlyBy Math™* Alignment**
Mathematics Curriculum Standards
Content Standards

NUMBER AND OPERATIONS

Standard II. Understand meanings of operations and how they relate to one another.

Expectation C. Identify and use relationships between operations, such as division as the inverse of multiplication to solve problems.

2. Solve multiplication problems such as rates and applications of the Fundamental Counting Principle.	<i>FlyBy Math™</i> Activities --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
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ALGEBRA

Standard I. Understand patterns, relations, and functions.

Expectation B. Represent and analyze patterns and functions, using words, tables, and graphs.

*1. Represent and analyze patterns and functions using words, tables, and graphs.	<i>FlyBy Math™</i> Activities --Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
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Standard IV. Analyze change in various contexts.

Expectation A. Investigate how a change in one variable relates to a change in a second variable.

1. Describe the relationship among distance, speed, and time.	<i>FlyBy Math™</i> Activities --Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use the distance-rate-time formula to predict and analyze aircraft conflicts.
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Expectation B. Identify and describe situations with constant or varying rates of change and compare them.

1. Create charts and graphs to show change over time.	<i>FlyBy Math™</i> Activities --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on
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	a Cartesian coordinate system.
2. Represent situations with number tables, graphs, and verbal descriptions.	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
*3. Associate tables, graphs, and stories of the same event.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

GEOMETRY

Standard II. Specify locations and describe spatial relationships using coordinate geometry and other representational systems.

Expectation B. Make and use coordinate systems to specify locations and to describe paths.

	<i>FlyBy Math™</i> Activities
*1. Using ordered pairs of numbers, locate and name points in the first quadrant of a coordinate system.	--Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes.

MEASUREMENT

Standard II. Apply appropriate techniques, tools, and formulas to determine measurements.

Expectation B. Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and the size of angles.

	<i>FlyBy Math™</i> Activities
*1. Select and use appropriate tools and units to measure given items to an indicated precision (time in seconds through years; length in millimeters through kilometers, one-eighth of an inch through miles; liquid volume in milliliters through liters, ounces through gallons; mass/weight in milligrams through kilograms, ounces through pounds).	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
*2. Determine an amount of elapsed time in hours, minutes, and seconds within a 24-hour period.	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.

DATA ANALYSIS AND PROBABILITY

Standard I. Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.

Expectation B. Collect data using observations, surveys, and experiments.

1. Collect data using observations, surveys, and experiments.	<i>FlyBy Math™</i> Activities --Conduct simulation and measurement for several aircraft conflict problems.
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Expectation C. Represent data using tables and graphs such as line plots, bar graphs, and line graphs.

*2. Construct and interpret tables and line graphs for data sets from applied situations.	<i>FlyBy Math™</i> Activities --Represent distance, rate, and time data using tables, line plots, bar graphs, and line graphs. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.
3. Explain what type of graph may be appropriate for a given data set.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

Standard III. Develop and evaluate inferences and predictions that are based on data.

Expectation A. Propose and justify conclusions and predictions that are based on data and design studies to further investigate the conclusions or predictions.

1. Make and justify predictions based on data from a variety of applied situations.	<i>FlyBy Math™</i> Activities --Predict outcomes and explain results of mathematical models and experiments. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
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